SYNCHRONIZATION IN DISTRIBUTED MEASUREMENT SYSTEMS

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Aim of the lesson is to give an introduction to the synchronization service for Distributed Measurement Systems (DMS). The synchronization technique operates on the clock of each node interface. The synchronized clock are used to : (i) sent synchronized command to the Measurement Instruments (MI), or (ii) correlate in time the measurement values. In the lesson, the standard IEEE 1588 will be presented with the aim to explain how the sub- s synchronization accuracy can be achieved among node clocks. In particular different architectures implementing the standard IEEE 1588 will be shown and the main requirements that the synchronization algorithm must satisfy will be presented. From such an analysis, the limits that the research activity is trying to overcome will be highlighted.

MICROELECTROMECHANICAL SYSTEMS (MEMS). INTRODUCTION TO MEMS PROCESSING

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What is MEMS? MEMS or Micro Electro Mechanical Systems is a technique of combining Electrical and Mechanical components together on a chip, to produce a system of miniature dimensions. By miniature, we mean dimensions less than the thickness of human hair, average 70mm.
Sensors made using MEMS are better than their conventional counterparts because they are :

•Smaller in size
•Have lower power consumption
•More sensitive to input variations
•Cheaper due to mass production
•Less invasive than larger devices

Figure 1 Digital mammal tags